UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address: COMMISSIONER FOR PATENTS P.O. Box 1450 Alexandria, Virginia 22313-1450 www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

THE DOW CHEMICAL COMPANY 9330 ZIONSVILLE ROAD INDIANAPOLIS, IN 46268 EXAMINER
GUPTA, ANISH

ART UNIT PAPER NUMBER

1654

DATE MAILED: 02/17/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590.185	04/02/2007	Timothy C. Frank	62644A US	3532

TITLE OF INVENTION: METHOD FOR THE EXTRACTION OF INTRACELLULAR PROTEINS FROM A FERMENTATION BROTH

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/17/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN <u>THREE MONTHS</u> FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. <u>THIS STATUTORY PERIOD CANNOT BE EXTENDED</u>. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax
(571)-273-2885

appropriate. All further	correspondence including d below or directed oth	g the Patent, advance o	rders and notification of	maintenance fees wil	I be mailed to the curren	should be completed where t correspondence address as parate "FEE ADDRESS" for	
		ock 1 for any change of address)	Fee	(s) Transmittal This	certificate cannot be used	or domestic mailings of the for any other accompanying ent or formal drawing, must	
THE DOW CHEMICAL COMPANY 9330 ZIONSVILLE ROAD INDIANAPOLIS, IN 46268			I he Sta add trai	Certificate of Mailing or Transmission I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.			
						(Depositor's name)	
						(Signature)	
						(Date)	
APPLICATION NO.	FILING DATE		FIRST NAMED INVENTOR	١.	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
10/590,185	04/02/2007		Timothy C. Frank	•	62644A US	3532	
OTTLE OF INVENTION:			ACELLULAR PROTEIN	S FROM A FERME		DATE NIE	
	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	<u> </u>			
nonprovisional	NO	\$1510	\$300	\$0 -	\$1810	05/17/2011	
EXAM	INER	ART UNIT	CLASS-SUBCLASS				
GUPTA,	ANISH	1654	530-412000				
"Fee Address" indi PTO/SB/47; Rev 03-0 Number is required.	ondence address (or Cha 3/122) attached. cation (or "Fee Address' 2 or more recent) attached	nge of Correspondence Indication form ed. Use of a Customer	2. For printing on the particle (1) the names of up to or agents OR, alternation (2) the name of a sing registered attorney or 2 registered patent attallisted, no name will be THE PATENT (print or ty	o 3 registered patent ively, le firm (having as a ragent) and the names or agents. If no printed.	nember a 2 of up to o name is 3		
(A) NAME OF ASSIC	SNEE		(B) RESIDENCE: (CIT	Y and STATE OR CO	OUNTRY)	document has been filed for	
Please check the appropri	ate assignee category or	categories (will not be p	rinted on the patent):	Individual 🖵 Cor	poration or other private g	roup entity 🖵 Government	
4a. The following fee(s) are submitted: 1 Issue Fee 1 Publication Fee (No small entity discount permitted) 1 Advance Order - # of Copies			b. Payment of Fee(s): (Ple A check is enclosed. Payment by credit ca The Director is hereb overpayment, to Dep	rd. Form PTO-2038 i	s attached.		
5. Change in Entity Stat				1 ' COMATA	TATEMENT A G 27 A	NED 1 277 ()(2)	
	S SMALL ENTITY statu				ENTITY status. See 37 (the assignee or other party in	
interest as shown by the r	ecords of the United Sta	tes Patent and Trademark	k Office.	the applicant, a regist	ered autorney or agent, or	ne assignee of other party in	
Authorized Signature				Date			
Typed or printed name	·			Registration No			
This collection of informa an application. Confident submitting the completed his form and/or suggesti Box 1450, Alexandria, V	ation is required by 37 C iality is governed by 35 I application form to the ons for reducing this bur irginia 22313-1450. DO	FR 1.311. The informative U.S.C. 122 and 37 CFR USPTO. Time will vary rden, should be sent to the NOT SEND FEES OR	on is required to obtain or 1.14. This collection is es y depending upon the indi the Chief Information Offic COMPLETED FORMS T	retain a benefit by the stimated to take 12 m vidual case. Any con er, U.S. Patent and T O THIS ADDRESS.	e public which is to file (ar inutes to complete, includi ments on the amount of t rademark Office, U.S. Deg SEND TO: Commissioner	nd by the USPTO to process) ng gathering, preparing, and ime you require to complete partment of Commerce, P.O. for Patents, P.O. Box 1450,	

Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address: COMMISSIONER FOR PATENTS

P.O. Box 1450 Alexandria, Virginia 22313-1450 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,185	04/02/2007	Timothy C. Frank	62644A US 3532	
57272 75	90 02/17/2011		EXAM	INER
THE DOW CHE	MICAL COMPANY	GUPTA, ANISH		
INDIANAPOLIS,			ART UNIT	PAPER NUMBER
			1654	
			DATE MAILED: 02/17/201	1

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 666 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 666 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

- 1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
- 2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
- 3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
- 4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
- 5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
- 6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
- 7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
- 8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
- 9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

	Application No.	Applicant(s)
	10/590,185	FRANK ET AL.
Notice of Allowability	Examiner	Art Unit
	ANISH GUPTA	1654
The MAILING DATE of this communication appear All claims being allowable, PROSECUTION ON THE MERITS IS herewith (or previously mailed), a Notice of Allowance (PTOL-85) NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIP of the Office or upon petition by the applicant. See 37 CFR 1.313 1. This communication is responsive to 10/21/2010.	(OR REMAINS) CLOSED in this ap or other appropriate communication IGHTS. This application is subject t	plication. If not included n will be mailed in due course. THIS
 2.		
 Acknowledgment is made of a claim for foreign priority ur a) All b) Some* c) None of the: 1. Certified copies of the priority documents have 2. Certified copies of the priority documents have 3. Copies of the certified copies of the priority documents have International Bureau (PCT Rule 17.2(a)). 	be been received. be been received in Application No	
* Certified copies not received:		
Applicant has THREE MONTHS FROM THE "MAILING DATE" noted below. Failure to timely comply will result in ABANDONM THIS THREE-MONTH PERIOD IS NOT EXTENDABLE. 4. A SUBSTITUTE OATH OR DECLARATION must be subm	IENT of this application. itted. Note the attached EXAMINER	'S AMENDMENT or NOTICE OF
INFORMAL PATENT APPLICATION (PTO-152) which give	es reason(s) why the oath or declara	ation is deficient.
CORRECTED DRAWINGS (as "replacement sheets") mus		
(a) ☐ including changes required by the Notice of Draftspers	son's Patent Drawing Review(PTO	-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date	,	
(b) ☐ including changes required by the attached Examiner's Paper No./Mail Date		
Identifying indicia such as the application number (see 37 CFR 1 each sheet. Replacement sheet(s) should be labeled as such in t		
6. DEPOSIT OF and/or INFORMATION about the depo attached Examiner's comment regarding REQUIREMENT	SIT OF BIOLOGICAL MATERIAL I FOR THE DEPOSIT OF BIOLOGIC	must be submitted. Note the AL MATERIAL.
Attachment(s) 1. ☑ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	 5. ☐ Notice of Informal F 6. ☐ Interview Summary Paper No./Mail Da 7. ☐ Examiner's Amenda 8. ☒ Examiner's Statema 	(PTO-413), te
/	9. Other	
/Anish Gupta/ Primary Examiner, Art Unit 1654		

Art Unit: 1654

EXAMINER'S AMENDMENT

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jarett Abramson on Feb. 10, 2011.

Claims 5, 7, 12, 14, 18 and 20 are canceled.

Claims 1, 10 and 16 are amended as follows:

- 1. A method for extracting an intracellular protein from a fermentation broth comprising the steps of:
 - (a) intermixing a sufficient quantity of a glycol ether with an aqueous fermentation broth at a temperature to form a single aqueous phase comprising a protein, or the glycol ether, and water is formed;
 - (b) separating the single aqueous phase comprising the protein, the glycol ether, and water formed in step (a) from solid biomass impurities; and, optionally,
 - (c) recovering the protein from the single aqueous phase obtained in step (b) by any conventional protein recovery method,

wherein he glycol ether is ethylene glycol n-propyl ether, propylene glycol ethyl ether, propylene glycol methyl ether, diethylene glycol n-butyl ether, diethylene glycol n-butyl ether, triethylene glycol n-pentyl ether, triethylene glycol ethyl ether, triethylene glycol methyl ether, triethylene glycol methyl ether, diethylene glycol dimethyl ether, ethylene glycol n-butyl ether, ethylene glycol n-butyl ether, ethylene glycol iso-butyl ether, propylene glycol n-propyl ether, dipropylene glycol ethyl ether, dipropylene glycol iso-propyl ether, diethylene glycol 2-methylbutyl ether, diethylene glycol n-pentyl ether, triethylene glycol n-heptyl ether, triethylene glycol n-heptyl ether, triethylene glycol n-hexyl ether, diethylene glycol ethyl ether acetate, or diethylene glycol diethyl ether.

Application/Control Number: 10/590,185

Page 3

Art Unit: 1654

- 10. A method for extracting an intracellular protein from a fermentation broth comprising the steps of:
 - (a) intermixing a sufficient quantity of a partially water miscible glycol ether with an aqueous fermentation broth at a temperature such that two phases are formed, a first aqueous phase comprising a protein, partially water miscible glycol ether, and water; and a second phase comprised mainly of partially miscible glycol ether;
 - (b) separating the first aqueous phase formed in step (a) from the second phase,
 - (c) separating the first aqueous phase obtained in step (b) from solid biomass impurities; and, optionally,
 - (d) recovering the protein from the first aqueous phase obtained in step (c) by any conventional protein recovery method,

wherein the glycol ether is ethylene glycol n-butyl ether, ethylene glycol iso-butyl ether, propylene glycol n-propyl ether, dipropylene glycol ethyl ether, dipropylene glycol iso-propyl ether, diethylene glycol 2-methylbutyl ether, diethylene glycol n-pentyl ether), triethylene glycol n-heptyl ether, triethylene glycol n-hexyl ether, diethylene glycol ethyl ether acetate, diethylene glycol diethyl ether, ethylene glycol 2- methylbutyl ether, ethylene glycol n-hexyl ether, ethylene glycol n-pentyl ether, propylene glycol n-butyl ether, propylene glycol n-butyl ether, dipropylene glycol n-butyl ether, dipropylene glycol n-propyl ether, diethylene glycol n-hexyl ether, tripropylene glycol n-butyl ether, tripropylene glycol n-propyl ether, ethylene glycol ethyl ether acetate, ethylene glycol n-butyl ether acetate, diethylene glycol n-butyl ether acetate, propylene glycol methyl ether acetate, ethylene glycol dibutyl ether, or dipropylene glycol dimethyl ether.

- 16. A method for extracting an intracellular protein from a fermentation broth comprising the steps of:
 - (a) intermixing a sufficient quantity of a partially water miscible glycol ether with an aqueous fermentation broth at a temperature such that two phases are formed, a first aqueous phase comprised mainly of a partially water miscible glycol ether, and water; and a second phase comprising a protein and partially miscible glycol ether;
 - (b) separating the second phase formed in step (a) from the first aqueous phase,
 - (c) separating the second phase obtained in step (b) from solid biomass impurities; and, optionally,
 - (d) recovering the protein from the second phase obtained in step (c) by any conventional protein recovery method,

Wherein the glycol ether is ethylene glycol n-butyl ether, ethylene glycol iso-butyl ether, propylene glycol n-propyl ether, dipropylene glycol ethyl ether, dipropylene glycol iso-propyl ether, diethylene glycol 2-methylbutyl ether, diethylene glycol n-pentyl ether), triethylene glycol n-heptyl ether, triethylene glycol n-hexyl ether, diethylene glycol ethyl ether acetate, diethylene glycol diethyl ether, ethylene glycol 2-methylbutyl ether, ethylene glycol n-hexyl ether, ethylene glycol n-pentyl ether, propylene glycol n-butyl ether, propylene glycol tert-butyl ether, propylene glycol iso-propyl ether, dipropylene glycol n-butyl ether, dipropylene glycol n-butyl ether, diethylene glycol n-butyl ether, dipropylene glycol n-butyl ether, diethylene glycol n-butyl

Art Unit: 1654

ether, tripropylene glycol n-propyl ether, ethylene glycol ethyl ether acetate, ethylene glycol n-butyl ether acetate, diethylene glycol n-butyl ether acetate, propylene glycol methyl ether acetate, ethylene glycol diethyl ether, ethylene glycol dibutyl ether, diethylene glycol dibutyl ether, or dipropylene glycol dimethyl ether.

Reason For Allowance

The prior art Thompson et al. (US4011137) teaches mixing fermentation broth with Triton X-100 (see col. 16, lines 33-40). Triton x-100 has a structure:

. While

the reference teaches the use of Triton X-100, the reference does not teach the single or two phase extracting an intracellular protein from a fermentation broth using the specific glycol ethers claimed. Thus, the claims are both novel and unobvious over the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANISH GUPTA whose telephone number is (571)272-0965. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tsang Cecilia can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number: 10/590,185 Page 5

Art Unit: 1654

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anish Gupta/ Primary Examiner, Art Unit 1654